

REMARKS

As a preliminary matter, Applicant wishes to thank Examiner Vo and Supervisory Examiner Wong for extending the courtesy of a personal interview on May 24, 2000 with Applicant's representatives, Gerard Weiser and Robert McKinley, to discuss the distinctions between the claimed invention and the cited prior art. In particular, Applicant's representatives detailed the distinction between the claimed invention noted in claim 1 over the Yamuro reference (U.S. Patent No. 5,941,626).

I. Claim Status

Claims 1-9 and 11-28 are now pending in the application. Claim 1 is the only independent claim. Claims 2 through 28 depend from claim 1 either directly or via another dependent claim. Applicant hereby requests further examination and reconsideration of the application, in view of the foregoing remarks.¹

II. 35 U.S.C. §102(e) Rejections

Claims 1-3, 9, 14-16, 25 and 26 were rejected under 35 USC §102(e) as being anticipated by Yamuro.² For a reference to anticipate under §102 it has to meet **every element** of the claimed invention.

Applicant's invention relates to an LED light string having a pair of wires connected to an AC electrical plug. A predetermined number of LEDs are electrically coupled in series to form a series block. The series block is electrically coupled directly to an AC source, *without* intermediate LED drive circuitry or power conditioning circuitry. It is noteworthy that claim 1

¹ Although the Office Action has been made final, Supervisory Examiner Wong assured Applicant's representatives during the interview that all materials in this file will be given thorough consideration.

² Claim 1 was amended in response to the first Office Action and was considered when the Examiner issued the final Office Action. We noted during the interview that claim 1 has been rejected only under §102(e). No further amendments to claim 1 have been made.

recites a point-by-point direct connection between a first LED and an AC source, and between a last LED and the AC source.³ Claim 1 is as follows:

A light string comprising:

a predetermined number of light emitting diodes "LEDs" electrically coupled in series to form at least one series block, the series block having a first LED and a last LED, the first LED directly coupled intermediate a source end and a terminal end of a first of a pair of wires and the last LED directly coupled intermediate the source end and terminal end of a second of the pair of wires, and

a first connector coupled to both the source end of the first of the pair of wires and the source end of the second of the pair of wires which connector is adapted for direct electrical connection to an alternating current electrical power supply.

Yamuro also relates to an LED light string. However, Yamuro teaches and requires the use of a resistor in series with the AC source. Clearly, Yamuro does not show the direct connection, as recited in claim 1 of Applicant's invention. We appreciate that Examiner Vo agreed during the interview that the Yamuro reference does not disclose a direct connection between the first LED and an AC source and the last LED and the AC source. Moreover, the final Office Action does not state that Yamuro discloses this structure. Accordingly, based on these facts alone, the §102(e) rejection should be withdrawn.

Notwithstanding, Applicant notes that the Examiner, in making out the §102 rejection, relied on column 3, line 37 of Yamuro, which states that "the resistance 8 apparently seems unnecessary". However, the ensuing line of the patent states that "it is proved from experience that the apparatus is stable in function by providing the resistance 8." Thus, it is indisputable that Yamuro teaches that the resistance is necessary for the circuit to work properly.

Under the law, the Patent Office must consider the *overall teaching* of the *entire reference* in relying on a reference under §102, and not an isolated phrase read out of context. To that end, Yamuro makes repeated references to the requirement of a resistor in an LED light string circuit.

³ The Examiners noted that Claim 1 may contain negative limitations that may be improper. However, we showed the Examiners during the interview that claim 1 positively recites a point-to-point connection of elements and does not contain negative limitations.

First, it is clear from the Figures in Yamuro that a resistor is required. For example, Figures 1A and 1B show a resistor 8 in series with the negative terminal of the AC source depicted therein. Also noteworthy are Figures 10A and 10B, which show a drop resistance 32 in series with the negative terminal of a DC source.

Second, the specification teaches that a resistor is required at numerous locations, such as column 3, lines 23-30 and column 3 lines 34-45. For example, column 3, lines 23-30 teach that a resistor is required and describe Figure 1A as a light emitting unit connected through a resistance to an AC source:

The conductor 2 is connected to the anode of the light emitting unit 6, and the conductor 3 is connected to the cathode of the light emitting unit 6. The conductor 2 is connected to one terminal of a power source plug 7 whereas the conductor 3 is connected to the other terminal of the power source plug 7 through a resistance 8.

Also, column 3, lines 34-45 *again* emphasize the need for a resistor in the circuit by warning the reader that, although the resistance 8 may *appear* to be unnecessary, it is proved from experience that the resistance is required:

Since the required power source of 100V is equal to the common source voltage in Japan, the resistance 8 apparently seems unnecessary. However, it is proved from experience that the apparatus is stable in function by providing the resistance 8.

Lines 34-45 may appear to suggest that the resistor 8 is optional. However, Applicant's representatives pointed out during the interview that it is improper to read elements into a reference that are clearly not there, or to exclude elements that are clearly taught to be required.

Furthermore, lines 34-45 of Yamuro indicates that the inventor did not want the reader to be misled into believing that the circuit would work without the resistance. Thus, the entire teaching of Yamuro not only fails to meet every element of the claimed invention, but clearly teaches away from the Applicant's invention.

The law mandates that a §102 rejection can only be sustained if a reference meets every element of the claimed invention. This definition comports with the notion that it is improper to read elements into a reference or exclude elements taught to be required. For these reasons, applicant respectfully submits that Yamuro does not anticipate claim 1 and that claim 1 is

allowable. Since claims 2-9 and 11-28 depend either directly or indirectly from claim 1, those claims are also allowable.

Although overcoming the §102 rejection places all claims in condition for allowance, Applicant would like to emphasize that Yamuro's teaching is consistent with other prior art of record, not relied upon with respect to claim 1, which all teach away from Applicant's invention.⁴

The following prior art exemplifies that current limiting circuitry, such as a resistor, inductor or capacitor, was thought to be required prior to the Applicant's invention: Raymond (U.S. Pat. No. 5,936, 599) at col. 2, ll. 50-52 states that "a current limiting resistor 28 (a generating resistor) *must be connected*", and at line 57 that "the resistor is the *dominant* factor in determining the LED current." Page 3 of Hewlett Packard's Operational Considerations for LED Lamps and Display Devices states that "An LED . . . *requires* some kind of current limiting". Pages 210 and 211 of Light Emitting Diodes--An Introduction, states that "some means for current limitation *has to be provided*". Pages 215 and 216 of Luminescence and the Light Emitting Diode states that "they [LEDs] *need* a series resistance to limit the current." Pages 2.18 and 2.19 of Hewlett Packard's Optoelectronics Manual, show that one of ordinary skill in the art would think that Applicant's invention was *not* obvious since removal of current limiting circuitry is taught to harm the LED lamp.

Applicant's representative appreciates Examiner Vo's frank acknowledgment during the interview that all of the specifications that she has reviewed for LED's require some form of current limiting circuitry.⁵ This acknowledgment is consistent with the teachings of the prior art noted above and should clear up any ambiguity with respect to the teachings of Yamuro.

Notwithstanding the teachings of Yamuro, Examiner Vo asserted personal knowledge of a circuit having an LED directly connected to an AC source. We appreciate the Examiner's

⁴ The pertinent portions of these references were reviewed during the interview and submitted with an IDS along with the response to the first Office Action.

⁵ Applicant's representative, Mr. McKinley, carefully restated Examiner Vo's comment during the interview to Supervisor Wong to confirm the Examiner's statement.

concern, however, we note with respect that the Examiner did not cite a reference showing such a circuit configuration.⁶ Furthermore, although the Examiner stated during the interview that the circuit would work *without* the resistor, the Examiner has not offered any reference, submitted an affidavit, or provided any facts on this record to support such a statement. Accordingly, Applicant respectfully refutes the Examiner's assertion of personal knowledge.

All the prior art of record, whether relied upon or not by the Examiner, supports Applicant's contention that, prior to the invention by applicant, the use of a resistor was taught to be required. In particular, and critical to overcoming the §102 rejection, the Yamuro reference does not show each and every element recited in claim 1. Thus, claim 1 and all the claims depending therefrom are allowable.

Parenthetically, during the interview, Applicant submitted compelling evidence of commercial success, which is attached hereto as Exhibit A. We note with appreciation Supervisory Examiner Wong's comment that evidence of commercial success is welcomed, but not required in response to a §102(e) rejection. The attached evidence includes an article from Hardware & Home Centre Magazine dated July/August 1999, the March 20, 2000 edition of HFN, which is a weekly newspaper of home products retailing, and Selling Christmas Decorations 2000, which is targeted to distributors of Christmas decorations. As shown in the attachment to that article, the product has generated 33 inquiries from distributors. Furthermore, applicant has received an incredibly large number of orders for the product from a number of well-recognized department stores, hardware stores, and toy stores.

III. 35 U.S.C. §103(a) Rejections

Claims 4-8 and 21-24 were rejected under 35 USC §103(a) as being unpatentable over Yamuro in view of Raymond (U.S. 5,936,599). Claims 11, 12, 17 and 18 were rejected under 35 USC §103(a) as being unpatentable over Yamuro. Claims 13-28 were rejected under 35 USC §103(a) as being unpatentable over Yamuro in view of Frohardt et al. (U.S. 3,758,771). Claims

⁶ If an applicant refutes an Examiner's assertion of personal knowledge, the law requires the Patent Office to cite to a reference, or submit an affidavit under 37 CFR 1.104, to properly maintain a §102 or §103 rejection. *See also* MPEP 2144.03.

19 and 20 were rejected under 35 USC §103(a) as being unpatentable over Yamuro in view Chang et al. (U.S. 5,887,967).

All of the claims rejected under §103 are dependent on Claim 1, which was only rejected under §102(e). Thus, it is unnecessary to discuss these rejections since claim 1 is allowable over the §102 reference. Notwithstanding, the Applicant briefly will discuss the §103 rejections below.

The Yamuro reference is cited alone or in combination with other references as the basis for each of the §103 rejections. As set forth in greater detail above, Yamuro teaches away from Applicant's invention. Thus, the Yamuro reference alone, or the combination of Yamuro with any of the references would direct one of ordinary skill in the art *away from* Applicant's invention. Accordingly, Applicant respectfully submits that claims 4-8 and 11-28 are not obvious in view of Yamuro alone, or in combination with the other cited references.

Furthermore, neither Reymond, Frohardt, nor Chang teach or suggest a direct connection between an AC source and an LED. As mentioned above, Reymond at col. 2, ll 50-52 states that a resistor is required, and Frohardt and Chang do not discuss it at all. Accordingly, Applicant's invention is patentable over the prior art of Yamuro in view of Reymond and the combination of the references could not be construed to teach or suggest Applicant's invention.

IV. CONCLUSION

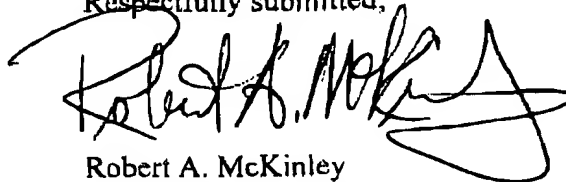
Based on the foregoing, Applicant submits that the light string of claim 1 is not anticipated by Yamuro. Claims 2-9 and 11-28 all depend from claim 1 either directly or via another dependent claim, and are believed to be allowable for the reasons given in connection therewith.

Furthermore, claims 4-8 and 11-28 are not taught nor fairly suggested by the Reymond reference, the Frohardt reference, the Chang reference, or any of the other references cited. Therefore, reconsideration and withdrawal of the §103 rejection of these claims is respectfully requested.

Should the Examiner believe that direct contact with the Applicant's attorney would advance the prosecution of this application, the Examiner is invited to telephone the undersigned at the number listed below.

Applicants respectfully submits that the claims as amended are patentable over the cited references. Accordingly, an early Notice of Allowance is earnestly solicited.

Respectfully submitted,



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